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⑤④ **Putrescine N-methyltransferase, recombinant DNA molecules encoding putrescine N-methyltransferase, and transgenic tobacco plants with altered nicotine content.**

⑤⑦ There is provided highly purified tobacco putrescine N-methyltransferase, a process for its purification, and production of PMT DNA sequence. The purification process includes the step of applying a tobacco root extract to an anion exchange medium and specifically eluting putrescine N-methyltransferase with an elution buffer comprising putrescine.

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
D,X	CHEMICAL ABSTRACTS, vol. 76, 1972, Columbus, Ohio, US; abstract no. 55697, MIZUSAKI, S., ET AL.: 'Phytochemical studies on tobacco alkaloids. XIV. Occurrence and properties of putrescine N-methyltransferase in tobacco roots'	1,2	C12N15/54 C12N9/10 C12N15/11 C12N5/10 A01H5/00
Y	* abstract * & PLANT CELL PHYSIOL. vol. 12, no. 4, 1971, pages 633 - 640;	15-23	
Y	EP-A-0 240 208 (CALGENE) 17 October 1987 * page 4, line 27 - line 28 *	15,17, 19-21,23	
Y	PLANT MOLECULAR BIOLOGY, vol. 15, no. 1, July 1990, DORDRECHT, THE NETHERLANDS, pages 27 - 38; HAMILL, J.D. ET AL.: 'Over-expression of a yeast ornithine decarboxylase gene in transgenic roots of Nicotiana rustica can lead to enhanced nicotine accumulation' * page 37, right column, paragraph 1 *	15,16, 18,20-22	TECHNICAL FIELDS SEARCHED (Int. Cl.5) C12N A01H
D,A	CHEMICAL ABSTRACTS, vol. 105, 1986, Columbus, Ohio, US; abstract no. 112135, FETH, F., ET AL.: 'Regulation in tobacco callus of enzyme activities of the nicotine pathway. I. The route ornithine to methylpyrrolidine' * abstract * & PLANTA vol. 168, no. 3, 1986, pages 402 - 407;	1-23	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 16 SEPTEMBER 1992	Examiner MADDOX A, D.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons * : member of the same patent family, corresponding document</p>			

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A	CHEMICAL ABSTRACTS, vol. 92, 1980, Columbus, Ohio, US; abstract no. 177499, OHTA, S., ET AL.: 'Metabolic key step discriminating nicotine production callus strain from ineffective one' * abstract * & BIOCHEM. PHYSIOL. PFLANZ, vol. 175, no. 4, 1980, pages 382 - 385;	1-23	
A	CHEMICAL ABSTRACTS, vol. 106, 1987, Columbus, Ohio, US; abstract no. 99481, WAGNER, R., ET AL.: 'The regulation of enzyme activities of the nicotine pathway in tobacco' * abstract * & PHYSIOL. PLANT, vol. 68, no. 4, 1986, pages 667 - 672;	1-23	
A	THE PLANT CELL, vol. 2, no. 1, January 1990, ROCKVILLE, MD, USA, pages 7 - 18; LAGRIMINI, L.M., ET AL.: 'Peroxidase-induced wilting in transgenic tobacco plants' * page 16, left column, last paragraph *	15, 16, 18, 20-22	
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